

## CLAIMS

- 1 - Process for the desulphurization of a mixture of hydrocarbons  
5 comprising sulphur compounds, comprising a stage of oxidation by means of an oxidizing agent, in order to oxidize the sulphur compounds, followed by a stage of removal of the oxidized sulphur compounds by adsorption on an adsorbent solid, characterized in that the adsorbent solid comprises at least 60% by weight of amorphous silica/alumina.
- 10 2 - Process according to Claim 1, characterized in that the mixture of hydrocarbons before oxidation comprises aromatic hydrocarbons in an amount of less than or equal to 80% by weight.
- 3 - Process according to any one of the preceding claims, characterized in that the sulphur content of the mixture of hydrocarbons before adsorption is less  
15 than or equal to 200 ppm
- 4 - Process according to any one of the preceding claims, characterized in that the oxidizing agent comprises hydrogen peroxide.
- 5 - Process according to any one of the preceding claims, characterized in that the alumina content of the silica/alumina is less than or equal to 50% by  
20 weight (with respect to the total weight of the dry adsorbent solid).
- 6 - Process according to any one of the preceding claims, characterized in that the adsorbent solid is devoid of any solid of crystalline structure.
- 7 - Process according to any one of Claims 1 to 5, characterized in that the adsorbent solid comprises at least one solid of crystalline structure in an amount  
25 of less than or equal to 40% by weight (with respect to the total weight of the dry adsorbent solid).
- 8 - Process according to the preceding claim, characterized in that the solid of crystalline structure is a zeolite X or Y.

9 - Process according to any one of the preceding claims, characterized in that the adsorbent solid exhibits a specific surface of greater than or equal to 400 m<sup>2</sup>/g and less than or equal to 1000 m<sup>2</sup>/g.

5 10 - Process according to any one of the preceding claims, characterized in that the adsorbent solid comprises mesopores.